

**AMENDMENTS TO THE CLAIMS**

Please **AMEND** claims 7, 10, 12 and 16 as shown below.

The following is a complete list of all claims in this application.

1. (Previously Presented) An abrasive carbon foam produced by controlled foaming a blend of materials, comprising:
  - about 90 to about 99% by volume of a particulate coal exhibiting a free swell index ranging from about 3.5 to about 5.0; and
  - about 1 to about 10% by volume of a carbide precursor powder wherein the carbide precursor is selected from the group consisting of tungsten, silicon, and titanium, and wherein the carbide precursor is capable of reacting with carbon during carbonation and graphitization.
2. (Previously Presented) The abrasive carbon foam produced by controlled foaming a blend of materials of claim 1, wherein said particulate coal exhibits a free swell index ranging from about 3.75 to about 4.5.
- Claims 3-4 (Cancelled)
5. (Previously Presented) The abrasive carbon foam produced by controlled foaming a blend of materials of claim 2, wherein said carbide precursor powder has particle sizes below about 100 microns.
6. (Previously Presented) The abrasive carbon foam produced by controlled foaming a blend of materials of claim 2, wherein the abrasive carbon foam is a semi-crystalline, largely isotropic, porous coal-based product having a density ranging from about 0.1 to about 0.8 g/cm<sup>3</sup>.
7. (Currently Amended) A method for producing an abrasive carbon foam, comprising:
  - comminuting coal exhibiting a free swell index ranging from about 3.5 to about 5.0 to form a particulate coal;

blending said particulate coal with about 1 to about 10% by volume of a carbide precursor powder to form a reactive blend, wherein the carbide precursor is selected from the group consisting of tungsten, silicon, and titanium; and

controllably heating said reactive blend in a mold under a non-oxidizing atmosphere to a first temperature ranging about 300° C and about 600° C and soaking at this temperature for a period ranging from about 10 minutes to about 12 hours to form an open celled material;

carbonizing said open celled material by heating to a second temperature ranging from about 600°C to about 1600°C in an inert atmosphere and holding at said second temperature for a period ranging from about 1 to about 3 hours to form a carbonized foam; and

graphitizing said carbonized foam by heating said carbonized foam to a third temperature ranging from about 1700°C to about 3000°C in an inert atmosphere and holding at said third temperature for a period of greater less than about one hour to form said abrasive carbon foam.

9. (Cancelled)

10. (Currently Amended) The method for producing an abrasive carbon foam of claim 7 , wherein said ~~carbon~~ carbide precursor powder has particle sizes below about 100 microns.

11. (Previously Presented) The method for producing an abrasive carbon foam of claim 7, wherein said particulate coal exhibits a free swell index ranging from about 3.75 to about 4.5.

12. (Currently Amended) An abrasive carbon foam manufactured by a process, comprising:

comminuting coal exhibiting a free swell index ranging from about 3.5 to about 5.0 to form a particulate coal;

blending said particulate coal with from about 1 to about 10% by volume of a carbide precursor to form a reactive blend, wherein the carbide precursor is selected from the group consisting of tungsten, silicon, and titanium ;

heating said reactive blend in a mold under a non-oxidizing atmosphere to a first temperature ranging from about 300° C to about 600° C at a heat up rate ranging from about 1° C/minute to about 20° C/minute and holding at the first temperature for a period ranging from about 10 minutes to about 12 hours to form a green foam blend;

controllably cooling said green foam blend to a second temperature below about 100° C;  
carbonizing said green foam blend to form a carbonized foam by heating to a third temperature ranging from about 600°C to about 1600°C in an inert atmosphere and holding at said third temperature for a period ranging from about 1 hour to about 3 hours to form a carbonized foam; and

graphitizing said carbonized foam by heating said carbonized foam to a fourth temperature ranging from about 1700° C to about 3000° C in an inert atmosphere and holding at said fourth temperature for a period of greater less than about one hour to form said abrasive carbon foam.

13. (Previously Presented) The abrasive carbon abrasive foam manufactured by a process of claim 12, wherein said particulate coal exhibits a free swell index ranging from about 3.75 to about 4.5.

14. (Previously Presented) The abrasive carbon foam manufactured by a process of claim 12, wherein said carbide precursor comprises:  
a member selected from the group consisting of materials capable of reacting with carbon to form carbides during calcining and graphitizing.

15. (Cancelled)

16. (Currently Amended) The abrasive carbon foam manufactured by a process of claim 12, wherein said ~~carbon~~ carbide precursor is a powder having a particle size below about 100 microns.

17. (Previously Presented) The abrasive carbon foam manufactured by a process of claim 12, wherein the abrasive carbon foam is a semi-crystalline, largely isotropic, porous coal-based product having a density ranging from about 0.1 to about 0.8 g/cm<sup>3</sup>.